SCIENCE, AERONAUTICS AND TECHNOLOGY

FISCAL YEAR 2002 ESTIMATES

BUDGET SUMMARY

ACADEMIC PROGRAMS **MINORITY UNIVERSITY RESEARCH AND EDUCATION PROGRAM**

SUMMARY OF RESOURCES REQUIREMENTS

	FY 2000 OPLAN REVISED	FY 2001 OPLAN REVISED	FY 2002 PRES BUDGET	Page Number
	(Thousand of Dollars)			
Historically Black Colleges and Universities	35,900	36,377	48,900	SAT 7.2-12
Institutional Science, Engineering and Technology Awards	--	3,483	11,544	
Principal Investigator Awards	6,429	4,445	7,650	
Math and Science Education Awards	20,894	14,429	18,180	
Partnership Awards	8,577	14,020	11,526	
Enterprise Program Funding *	[17,200]	[20,900]	[--]	
Other Minority Universities	17,900	19,500	33,200	SAT 7.2-17
Institutional Science, Engineering and Technology Awards	--	3,063	11,563	
Principal Investigator Awards	3,500	1,119	2,269	
Math and Science Education Awards	11,300	11,300	15,303	
Partnership Awards	3,100	4,018	4,065	
Enterprise Program Funding *	[11,600]	[15,300]	[--]	
Total Minority University Research Programs	53,800	55,877	82,100	
Total Enterprise Program Funding *	[28,800]	[36,200]	[--]	
Total Program Funding to Minority University Research	82,600	92,077	82,100	

FY 2000 and FY 2001 budgets reflect a higher level than FY 2002 due to the adding of Congressional interest as part of the FY 00 and FY 01 Congressional appropriation process.

* $36,200-increase in FY 2002 represents encumbered funding previously included in the Enterprise budgets.

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	FY 2000 OPLAN REVISED	FY 2001 OPLAN REVISED	FY 2002 PRES BUDGET
		(Thousands of Dollars)	
Distribution of Program Amount by Installation			
Ames Research Center (ARC)	1,715	1,669	1,750
Dryden Flight Research Center (DFRC)	1,256	870	1,250
Glenn Research Center (GRC)	6,875	5,324	3,942
Goddard Space Flight Center (GSFC)	26,132	33,164	60,777
Jet Propulsion Laboratory (JPL)	1,540	300	300
Johnson Space Center (JSC)	1,972	2,072	1,198
Kennedy Space Center (KSC)	3,262	2,467	1,993
Langley Research Center (LaRC)	1,100	2,307	3,133
Marshall Space Flight Center (MSFC)	6,300	4,825	5,130
Stennis Space Center (SSC)	1,442	783	500
Headquarters (HQ)	2,206	2,096	2,127
Total	53,800	55,877	82,100

PROGRAM GOALS

The Minority University Research and Education Programs (MUREP) focus primarily on expanding and advancing NASA's scientific and technological base through collaborative efforts with Historically Black Colleges and Universities (HBCU) and Other Minority Universities (OMU), including Hispanic-Serving Institutions (HSI) and Tribal Colleges and Universities (TCU), hereafter referred to as Minority Institutions (MI). NASA's outreach to MI's in FY 2002 will build upon the prior years' investments in MI research and academic infrastructure by expanding the Agency's research base; contributing to the science, engineering and technology pipeline; and promoting educational excellence in all MUREP. Through sufficient infrastructure-building support, exposure to NASA's unique mission and facilities, and involvement in competitive peer review and merit selection processes annually, MI's will be able to contribute significantly to the Agency's strategic goals and objectives. These contributions include the education of a more diverse resource pool of scientific and technical personnel who will be well prepared to confront the technological challenges to benefit NASA and the Nation. In addition to the Federal mandates for MI's, the strategic goals that guide NASA's MUREP are: (1) To

foster research and development activities at MI's which contribute substantially to NASA's mission; (2) To create systemic and sustainable change at MI's through partnerships and programs that enhance research and educational outcomes in NASA-related fields; (3) To prepare faculty and students at MI's to successfully participate in the conventional, competitive research and education process; and (4) To increase the number of students served by MI's to enter college and successfully pursue and complete degrees in NASA-related fields.

STRATEGY FOR ACHIEVING GOALS

NASA employs a comprehensive and complementary array of strategies to achieve these goals for MI's. These strategies include: (1) Working closely with NASA Strategic Enterprises, other government agencies, and interested parties to develop new research and education collaborations and partnerships; (2) Encouraging and providing opportunities for faculty to conduct NASA research early in their careers; (3) Providing incentives for students to enter and remain in mathematics, science and technology disciplines; (4) Establishing measurable program goals and objectives; and (5) Developing and implementing evaluations to assess the effectiveness and outcomes of the programs and financial performance, and thereby improving program delivery and results. A strategy used to expand MI involvement in competitive peer review processes and to ensure the relevance of research conducted by MI's is to involve NASA Strategic Enterprises early in the development of solicitation notices. Once Headquarters issues the notices, NASA Centers provide advice to prospective grantees, conduct peer reviews of proposals, and provide funding recommendations to the Office of Equal Opportunity Programs (OEOP) and the Strategic Enterprises. After Headquarters makes the selections, the research is returned to the nominating NASA Center(s) or Jet Propulsion Laboratory (JPL) for grant award and/or technical management of the award. OEOP provides policy direction and program oversight. Oversight of the research performed at MI's is conducted by the Strategic Enterprises in collaboration with OEOP. In addition, all MUREP requests for continuation funding are annually assessed for performance by the NASA Technical Officers and all awards funded for more than 2 years receive on-site reviews.

The successful deployment of these strategies has resulted in the establishment of four different programmatic award categories which apply equally to the HBCU and OMU Programs. These programmatic initiatives are carried out in close collaboration with NASA Strategic Enterprises and Centers/JPL. Strategic Enterprises and Centers/JPL support the MUREP through use of their facilities, and commitment of their personnel to serve on Technical Review Committees (TRC) and assist in other facets of program implementation. Institutional Science, Engineering and Technology (ISET) Awards combine the University Research Centers (URC) and Institutional Research Awards (IRA) under one award category. The ISET awards receive technical guidance and annual on-site reviews by TRC's. The awards for Principal Investigators (PI), Mathematics, Science, and Engineering (MSE), and Partnerships are managed predominately by personnel at the NASA Centers/JPL. As a result of the involvement of the Strategic Enterprises and NASA Centers/JPL in the MUREP, numerous students and PI's from MI's are knowledgeable about and make significant contributions to the Nation's space program.

In FY 2002, the existing awards in all four programmatic award categories will be maintained. However, the University Research Center (URC) and Institutional Research Awards (Research) has been consolidated into one award titled Institutional Science, Engineering and Technology (ISET) Awards. This adjustment was made to better reflect the emphasis on strengthening the institution's research capability and achieving outcomes that enhance the institution. The Institutional Research Awards for the Networks and Research Training Sites (NRTS) has been moved to Partnership Awards to better reflect this group of awards' contributions to NASA's educational technology goals. Outreach to MI's will continue to be made in collaboration with the Strategic

Enterprises and Centers/JPL to ensure that MI's are knowledgeable of and responsive to the Agency's Strategic Plan. OEOP will continue to set specific program goals that lead to measurable program outcomes that are consistent with the Agency's investment in MI's. These award categories are:

• **Institutional Science, Engineering and Technology (SET) Awards** include the University Research Center Program (URC) and the Institutional Research Awards (IRA). The URC Awards are collaborative programs conducted in cooperation with each Strategic Enterprise. These awards are designed to achieve a broad-based, competitive aerospace research capability among the Nation's MI's that will: foster new aerospace science and technology concepts; expand the Nation's base for aerospace research and development; develop mechanisms for increased participation by faculty and students in mainstream research; and increase the productivity of students (who are U.S. citizens and who have historically been underrepresented) with advanced degrees in NASA-related fields. The URC's have formed a National Alliance of NASA University Research Centers (NANURC). This Alliance has established a National Conference of the University Research Centers, created pathways for developing greater collaborations between the URC's, and is exploring avenues for increasing the number of advanced degrees being awarded to disadvantaged students. NASA is strongly supportive of this concept and is actively working with the Alliance to further develop and strengthen their organization. In FY 2000, NASA established a URC Expert Review Panel to conduct an independent comprehensive review of the 10-year URC Program and findings are expected in mid-FY 2001. Since these awards have received satisfactory annual technical reviews from NASA researchers, the FY 2002 budget reflects NASA's intent to continue the Program. The continuation of the Program will take into consideration recommendations from the Expert Review Panel before issuing an announcement of opportunity for new University Research Centers.

Institutional Research Awards (IRA) improve academic, scientific and technology infrastructure and broaden the NASA-related science and technology base at MI's. The first IRA (Research) award was made in FY 1994 and was limited to only OMU's. The most recent competitively selected IRA awards were made in FY 2000 to both OMU's and an HBCU. These awards provide OMU's and HBCU's with an opportunity to provide a quality learning and research environment in NASA-related areas.

As a result of participating in this program, OMU's and HBCU's contribute directly to NASA research and human resources requirements; support the development of the institution's NASA-related research capabilities; and increase the number and percentage of underrepresented minorities who are U.S. citizens with advanced degrees in NASA-related fields.

All ISET award recipients receive technical direction from appropriate technical representatives of the NASA Strategic Enterprises. OEOP continues to maintain responsibility for program policy and oversight. In order to foster closer ties between the URC's, IRA's and NASA, a Lead NASA Center is designated for each award. This Center is responsible for directly managing the URC cooperative agreements and for increasing MI involvement in ongoing NASA research and development activities. Collaborations with other NASA Centers, industry, and other universities continue to be strongly encouraged.

• **Principal Investigators (PI) Awards** are designed to increase the participation of faculty and other professionals in conducting NASA research, research training and/or administration. Faculty and other professionals can apply to three different programs.

The Faculty Awards for Research (FAR) provide new faculty, and those who have limited NASA experience, the opportunity to integrate the research and education components of their careers with the unique mission requirements of a specific NASA

Center/JPL. The FAR program provides merit selection of proposals from outstanding and promising science, engineering, and technology (SET)-tenured and tenure-track faculty who are capable of contributing to the Agency's research and education objectives. This award provides faculty members with research support and exposure to the NASA peer review process to enable them to demonstrate creativity, productivity, and future promise in the transition to achieving competitive awards in the Agency's mainstream research processes. The primary strategy for implementing FAR is through a competitive peer review and merit selection process in collaboration with the NASA Centers/JPL. Other strategies include: (1) Maintaining discipline-related personnel at the NASA Centers/JPL who are responsible for serving as points-of-contact for faculty interested in pursuing an award in this category; (2) Invite NASA Centers/JPL to serve on technical peer review panels and to make selection recommendations to Headquarters for funding consideration; and (3) Hold the NASA Center/JPL responsible for management and monitoring the research outcomes. By involving MI faculty and students in NASA research, the Agency hopes to increase the interest of traditionally underrepresented communities in the Agency's mission and involve a broader array of America's citizenry in the NASA-sponsored research community. A thorough analysis of the program from its inception (FY 1992) through FY 2000 was conducted by an external review panel in FY 2000. The results showed that the program has had a positive impact on the faculty and students at the receiving institutions. A recommendation to solicit proposals from faculty in two categories: 1) junior faculty and 2) other faculty was accepted and incorporated into the FY 2001 program design. Proposals will be solicited in FY 2001 and FY 2002 and 30 new awards will be competitively selected each year.

The NASA Administrator's Fellowship Program (NAFP) provides opportunities for NASA career employees and the mathematics, science, engineering, and technology (MSET) faculty of minority-serving institutions to compete through peer review for placement in a formal professional development program. In addition to individualized professional development enhancement, NASA employees spend a year teaching or conducting research at a minority-serving institution while MSET faculty spends a year conducting research at a NASA Center.

The Louis Stokes Leadership Program provides competitive, peer review selection of faculty, educators and other scientific and technical personnel with an opportunity to participate in a 4-year professional leadership program designed to assist the HBCU's and OMU's in strengthening the delivery and management of NASA-sponsored scientific research, (MSET) educational and training programs. Participants will spend 2 years at a NASA Center/JPL and 2 years at an HBCU or OMU enhancing their knowledge and ability to lead the institutions in better responses to the Federal Financial Assistance Management Improvement Act, Electronic Grants Initiatives, the Government Performance and Results Act, and achievement of better performance outcomes in conducting NASA-funded research and education programs.

• **Mathematics and Science Education (MSE) Awards** build upon these institutions' outstanding ability to provide excellence in MSET training while increasing the participation and achievement of socially and economically disadvantaged and/or disabled students in MSET fields at all levels of education. Awards are made in the following three areas: undergraduate and graduate; teacher preparation and enhancement; and precollege activities.

MSE Awards contribute to the national education goals by integrating the contents from the NASA mission into the educational outreach projects at MI's. As a result, NASA contributes to the increase in the number and the strengthening of the skills, knowledge, and interest of students and teachers in mathematics-, science-, engineering-, and technology-based academic

programs. New competitive peer review and merit selection awards will be made in the following areas during FY 2001 and FY 2002 to address NASA's future human resources requirements.

- Undergraduate and Graduate Awards provide scholarships, fellowships, internships, and research opportunities in NASA-related fields, and other services to enhance retention and increase graduation rates. These awards contribute to the U.S. scientific and technical leadership by partnering with HBCU's and OMU's to meet the Agency's mission and human resource requirements. They also respond to congressional direction to encourage students, particularly the underserved, to develop exceptional scholarship in science, mathematics, engineering and technology through research-based academic programs that increase the number of individuals from underrepresented groups in the pool of graduate researchers. In FY 2000, a NASA research-based fellowship program was established to address Congressional concerns about the underrepresentation of African Americans and other minorities in MSET areas. In FY 2001, at least 20 graduate students will enter the program and in FY 2002, NASA proposes to double the number of students to 40. All students must be U.S. citizens and must pursue degrees in NASA-related fields. During the academic year and/or summer, students are required to conduct research relevant to their fields of study at a NASA Center, on a university campus, at a Federal laboratory, or in the aerospace industry. It is expected that these students will form part of the pool from which NASA selects graduate researchers and/or employees.

- Teacher Preparation and Enhancement Awards provide opportunities for MI's to develop diverse and exemplary research-based mathematics, science, technology and geography teacher education curricula that are integrated with content from NASA's mission. It is the Agency's desire that the results will contribute to the participating states' efforts to increase the numbers and percentage of state-certified mathematics, science, technology or geography teachers employed in hard-to-staff elementary, middle, and secondary schools not normally served by NASA.

- Precollege Awards offer opportunities for MI's, in collaboration with NASA and local school districts, to provide informal educational opportunities that will enhance the numbers and percentage of students enrolled in mathematics and science college preparatory courses. As a result of participating in these awards, students will gain awareness of career opportunities in MSET fields, exposure to NASA's mission and scientific and technical personnel role models, and will enter college pursuing NASA-related career fields.

• **Partnership Awards** were continued in FY 2000 and FY 2001 with additional funds from Congress. These awards included the Partnership Awards for Innovative and Unique Research and Education Projects (IUREP) and the Partnership Awards for the Integration of Research into MSET Undergraduate Education (PAIR). These funds were also used to extend the Network Resources Training Sites awards for 3 additional years. To better measure program outcomes, beginning in FY 2001, the Partnership Awards for IUREP (Research) will be offered under the Principal Investigators Award category and the IUREP (Education) under the Mathematics and Science Education Awards category described above. In FY 2002, new Partnership Awards will be competitively selected to continue efforts to enhance academic infrastructure in specific NASA-related disciplines.

The NRTS will continue efforts to improve HBCU and OMU in-house capability to electronically access science data and computational resources; to develop mechanisms to support, sustain and evolve the network infrastructure of the targeted universities and colleges; and to make MI's more effective in the competitive process for NASA and other science, engineering and

technology funding opportunities. IRA awards provide for the acquisition of equipment essential to Internet connectivity. The strategies for achieving the IRA goals include: (1) Establishing lead NRTS; (2) Holding the lead NRTS accountable for providing Internet connectivity to other MI's and public schools; and (3) Training students, faculty, and teachers to build computers and effectively utilize the Internet to compliment teaching and research collaborations and delivery. The lead NASA Center, Goddard Space Flight Center (GSFC), manages the IRA (NRTS) under the auspices of GSFC's Minority University-Space Interdisciplinary Network (MU-SPIN) Program. NASA Strategic Enterprises, NASA Centers, and JPL support NRTS programs through use of their facilities, and commitment of their personnel to serve on TRC's and by assisting in other facets of program implementation. Students and PI's involved in NRTS spend time on-site at the Centers/JPL throughout the year.

PAIR will continue in FY 2002 to have an interdisciplinary focus that spans more than one MSET academic program, creating a collaborative effort among different academic departments. To extend the interdisciplinary focus, the MI's are strongly encouraged to demonstrate in their proposals, partnerships with NASA Centers/JPL, other institutions of higher education, and with the aerospace community. This approach enables NASA to continue its efforts to enhance collaboration among MSET academic departments, thereby strengthening the MSET baccalaureate degree-producing capacity of a number of the Nation's HBCU's and OMU's by building upon previous NASA funding. As a result, the outcomes of partnership awards are: (1) innovative interdisciplinary study among MSET academic programs that center on NASA-related course study, research, and technological applications, including collaborative efforts within MSET academic departments; (2) more competitive undergraduate U.S. students, underrepresented in MSET fields who, because of their research training and exposure to cutting-edge technologies, are better prepared to enter MSET graduate programs or MSET employment; (3) enhanced undergraduate courses and curricula including laboratory-based curricula that foster collaborative educational experiences between faculty members and students leading to institutional faculty development efforts; and (4) model HBCU's and OMU's that integrate NASA-related research into the appropriate areas of the undergraduate curriculum that expose greater numbers of students and faculty to the Agency's cutting-edge technologies. To enhance better program outcomes in FY 2001, the PAIR awards were transferred to the NASA Centers for technical management and oversight.

In FY 2001, NASA entered into a partnership with the National Association for Equal Opportunity in Higher Education (NAFEO) to explore the possibility of establishing an Academy for Scientific Research and Educational Advancement in the NASA Ames Research Center Research Park. In FY 2002, NAFEO and partners from HSI's and TCU's will solidify their partnership with NASA and begin to 1) expand research collaborations between NASA and Research Park scientists both on-site and at the partnering institutions, especially in the areas of astrobiology/biotechnology, information technology and nanotechnology; 2) contribute with innovative novel projects designed to examine the new frontiers in space research; 3) focus on integrating faculty and students to current NASA projects and in encouraging them to pursue careers in fields related to NASA interests; and 4) establish a virtual community of faculty and students at HBCU's and OMU's dedicated to supporting NASA's scientific mission including a diverse scientific workforce.

SCHEDULE & OUTPUTS

MUREP metrics are continually being improved. Performance data measuring participation and program outcomes is obtained through the required submission of annual performance reports and/or on-site or reverse-site reviews of each grant. Each award recipient submits an annual performance report that is reviewed by a NASA Technical Monitor or a TRC for qualitative and

quantitative progress toward the project's and NASA's program goals and objectives. Continuous assessment of this data has enabled OEOP MUREP to identify performance measures for research and education awards. As part of the grantee's annual reporting requirements, each awardee is now being required to respond to a set of uniform research or education outcomes that enables OEOP to assess progress across all research or education awards. The Uniform Outcomes Report was also designed to avoid duplication of reporting requirements by serving as the grantees' annual performance report. Additionally, as required by Executive Order 12876 for HBCU's, Executive Order 12900 for Educational Excellence for Hispanic Americans (EEHA), and Executive Order 13021 for TCU's, at the end of each fiscal year, NASA measures its performance against the concluding fiscal year plans that were submitted to the White House Initiative Offices and the Office of Management and Budget. The measures of performance include the number of awards and funding to HBCU's, EEHA's, and TCU's in the following categories: research and development; program evaluation; training; facilities and equipment; fellowships, internships, traineeships, recruitment and IPA's; student tuition assistance, scholarships, and other aid; direct institutional subsidies; third-party awards; private-sector involvement; and administrative infrastructure. The objectives are to establish uniform outcomes for all NASA MUREP awards and provide compact instruments for uniform collection of data keyed to those outcomes. This process reduces the collection of data to the minimal amounts possible, emphasizes outcomes, and is applicable to any common set of awards. The data collected can be aggregated both horizontally and longitudinally, permits adjustable benchmarking standards to be applied, and is collected electronically over the World Wide Web. A single annual collection of data is used to provide the information necessary for comparative and correlational analysis across research or education projects and information contained in the annual MUREP performance reports, including those required by the White House Initiative Offices on HBCU's, EEHA's, and TCU's. Based on prior years' evaluation results, the following uniform measures of performance have been established for OEOP MUREP research and education awards.

RESEARCH MEASURES OF PERFORMANCE (for URC's, IRA's, PI's, and Partnership (Research) Awards)

- Participants - students, faculty, post-doctoral researchers, research associates supported
- Student Outcomes - degrees awarded, post-graduation plans
- Research Outcomes – referred papers, technical presentations, patents, commercial products, research funds leveraged from other sources

EDUCATION AND TRAINING MEASURES OF PERFORMANCE (for MSE's and Partnership (Education) Awards)

- Participants - students, teachers supported
- High School Student Outcomes - enrollment in Mathematics, Science, Education and Technology (MSET) courses, graduation, enrollment in college, and selection of MSET majors
- Bridge Student Outcomes - completed freshman year in college
- Undergraduate and Graduate Student Outcomes - degrees awarded, post-graduation plans
- Teacher Outcomes - received certificates

IRA (NRTS) Additional metrics are designed to capture the technology and education focus of these awards. Specific metrics will include:

- The number of HBCU's, OMU's, and public schools connected to the Internet
- The number of faculty, teachers, and students trained to utilize the Internet to enhance research and educational outcomes

Continuous assessment of performance through annual evaluations of individual awards and the collection of uniform outcomes across all research and education programs will clearly indicate the impact of NASA MUREP on the scientific and technological base for NASA and the Nation, while minimizing the reporting burden on award recipients.

ACCOMPLISHMENTS AND PROPOSED RESULTS

NASA's MUREP investment in MI's for FY 2000 achieved the following:

1. Funding reached 39 states, the District of Columbia, the Virgin Islands, and Puerto Rico.
2. The number of awards involving competitive peer-review and merit-selection totaled 230 in FY 2000.
3. 77 HBCU's were involved in 206 research and education awards.
4. 73 OMU's were involved in 150 research and education awards.
   - 44 HSI's were involved in 88 research and education awards.
   - 19 TCU's were involved in 10 research and education awards.
   - 43 other institutions of higher education were involved in MUREP-funded awards.
   - 16 educational/professional organizations and 10 other organizations such as the American Association for the Advancement of Science, National Association for Equal Opportunity in Higher Education, National Action Council for Minorities in Engineering, Hispanic Association of Colleges and Universities, the Society for the Advancement of Chicanos and Native Americans in Science, the American Society for Engineering Education, and National Research Council were involved in MUREP-funded awards.

Described below are the accomplishments of the Research Measures of Performance and the Education and Training Measures of Performance. The outcomes reported for FY 2000 (reporting period Summer 1999 and Academic Year 1999-2000) show the following achievements for underrepresented and underserved students, teachers, and faculty.

Research Measures of Performance Accomplishments. The participants included 408 faculty members, 101 research associates, 32 postdoctoral fellows, 783 undergraduates, and 406 graduates. The MI's were able to leverage their NASA MUREP funding of $27 million to an additional $36.2 million in research support ($6.7 million from other NASA programs and $29.5 million from other agencies). Technology transfer activities included 32 patents disclosed, applied for, or awarded and 20 commercial products being developed or marketed. A major goal of MUREP is to increase the number of socially and economically disadvantaged and disabled students receiving advanced degrees and entering into careers in NASA-related fields. Of the 1,189 students involved in these research projects during the reporting period, 783 (66%) participated at the bachelors degree level, 294 (25%) participated at the masters degree level, and 112 (9%) participated at the doctoral degree level. During the reporting period, 416 students obtained degrees; 293 bachelor's degrees; 104 master's degrees; and 19 doctoral degrees.

Education and Training Measures of Performance Accomplishments. There were 157 MUREP education and training projects conducted at MI's. The programs included precollege and bridge programs, education partnerships with other universities, industry and nonprofit organizations, NRTS, teacher training, and graduate and undergraduate programs. These programs reached a total of 52,369 participants, with the predominant number at the precollege level. The programs achieved major goals of heightening students' interest and awareness of career opportunities in MSET fields and exposing students to the NASA mission, research and

advanced technology through role models, mentors, and participation in research. Formats included Saturday Academies, after-school classes, visits to NASA Centers and other scientific and technical industries, museums, hands-on science experiments, and computer training. Grantees reported that 15,190 high school students participated in NASA programs and 3,460 high school students selected college preparatory MSET courses. There were 1,969 high school graduates and 181 bridge students (high school graduates) in NASA programs. Enrolled in college were 1,274 students, of which 616 selected MSET majors. There was 146 High School Bridge students from Academic Year 1998/1999 who successfully completed the freshman year. For the teacher programs, 2,773 teachers (614 preservice teachers and 2,159 inservice teachers) participated and 803 teachers received certification (61 preservice and 742 inservice). For undergraduate student programs, 9,956 students participated, and 1,182 received degrees. There were 744 graduate students participating in graduate programs, and 152 received degrees. There were 77 papers published, 56 of which were authored or co-authored by students. There were 60 presentations given at NASA Centers/JPL and 214 presentations at national or international conferences.

• **NASA Strategic Enterprises and the Office of Equal Opportunity Programs Partnerships with HBCU's and OMU's** continued in FY 2000 and FY 2001. In FY 2000, the Enterprises invested $28.8M and in FY 2001, $36.2M in URC's, IRA's, and other programs and activities at MI's and other educational organizations. For FY 2002, these encumbered funds have been included in this portion of the Agency's budget. Additional collaborations between the OEOP and with each of the NASA Strategic Enterprises in FY 2000 and FY 2001 included jointly sponsored NASA Research Announcements that included opportunities for HBCU's and OMU's to compete and be selected through the peer review process for funding that will develop their research and education capabilities in areas specific to the mission of the partnering Strategic Enterprise. During FY 2000, several opportunities resulted from the OEOP and Strategic Enterprises' collaborative efforts. Initiatives with two of the five Enterprises are described below.

The Office of Earth Science (OES) and OEOP made awards from the competitive Earth Science Education initiative in FY 2000. OES solicited proposals from a broad range of education and research professionals to develop and implement Earth System Science Education Programs targeted for kindergarten through postdoctoral levels. Two HBCU's and a TCU received awards under this initiative.

Also in FY 2000, OEOP collaborated with OES on the UnESS Project. The Project was established to foster the development of the next generation of Earth system scientists, engineers, managers, educators, and entrepreneurs through significant and meaningful hands-on student involvement in Earth observation space missions at the university level. Applicants were required to include significant student involvement and were strongly encouraged to include the participation of MI's in their missions. OEOP provided supplemental funding to the top-rated scientific proposals that included significant and meaningful participation by HBCU's and OMU's. The purpose of the OEOP funding was to facilitate partnerships between NASA-funded institutions of higher education with substantial Agency assets and with HBCU's and OMU's that would lead to genuine investments in the NASA mission and long-term benefits to the individual HBCU or OMU. Nine HBCU's and OMU's received awards under this initiative.

In FY 2002, OEOP and OES will jointly sponsor a NASA Research Opportunity that will emphasize strengthening HBCU and OMU Earth Science academic infrastructure to enable these institutions to better respond to Earth Science investigations and technical personnel requirements.

The Office of Space Science (OSS)/OEOP Minority University Education and Research Partnership Initiative Program in Space Science provided opportunities for enhancing minority colleges and universities' study of Space Science and an understanding of the role of research in this field. The goals of the 3-year education and research awards are: (1) the development of Space Science-related academic capabilities and programs at MI's; and (2) the enhancement/development of faculty and students in Space Science-related fields at MI's through the establishment of partnerships and exchange programs in research and education with NASA-supported Space Science research groups. Fifteen HBCU's and OMU's were competitively selected in FY 2000 for 3-year awards.

SUMMARY

In FY 2001, NASA MUREP will continue to focus on its goals and strategies to integrate mission-focused research, technology transfer, and education at HBCU's and OMU's. NASA will continue to emphasize partnership awards that leverage NASA's investment by encouraging collaboration among NASA, HBCU's, OMU's and other university researchers and educators, and the aerospace industry. The Agency is also planning for new awards in
FY 2002 to include PI's, Math and Science, and Partnership awards.

BASIS OF FY 2002 FUNDING REQUIREMENT

HISTORICALLY BLACK COLLEGES AND UNIVERSITIES

	FY 2000	FY 2001	FY 2002
		(Thousands of Dollars)	
Historically Black Colleges and Universities	35,900	36,377	48,900
Institutional Science, Engineering and Technology Awards		3,483	11,544
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Partnership Awards	8,577	14,020	11,526
Enterprise Program Funding *	[17,200]	[20,900]	[--]

* $20,900-increase in FY 2002 represents encumbered funding previously included in the Enterprise budgets.

PROGRAM GOAL

NASA's HBCU program is responsive to Executive Order 12876, which requires all Federal agencies to strengthen the capacity of HBCU's to provide quality education and to participate in and benefit from Federal programs. The primary goal of NASA's HBCU program is to enhance institutional infrastructure in NASA-related areas and to provide technical assistance to facilitate planning, development, and the use of new technologies that will ensure the long-term viability and educational outcomes of HBCU's in areas strategic to NASA's mission.

STRATEGY FOR ACHIEVING GOALS

HBCU's were involved in NASA's mission before man set foot on the Moon in 1969. In 1980, President Jimmy Carter signed Executive Order 12232 which established a Federal program "...to strengthen and expand the capacity of HBCU's to provide quality education." Executive Orders issued by Presidents Ronald Reagan and George Bush strengthened this program. NASA's current initiatives for HBCU's are based on two recent Executive Orders. Executive Order 12876, signed November 1, 1993, by President William J. Clinton, mandates that agencies "...advance the development of human potential, to strengthen the capacity of HBCU's to participate in and benefit from Federal programs to achieve an increase in the participation by HBCU's in Federal programs." Executive Order 12928, signed February 16, 1994, by President Clinton, directs Federal agencies to promote procurement with "...Historically Black Colleges and Minority Institutions." NASA employs a comprehensive strategy to accomplish the HBCU program goals.

ACCOMPLISHMENTS AND PROPOSED RESULTS

As a result of NASA's FY 2000 investment in HBCU's, 30 HBCU's were the recipients of 204 awards which reached more than 20,428 faculty, teachers, and students. The FY 2002 budget estimate includes funding to continue HBCU involvement in all five award categories. Specific accomplishments for each of the categories are as follows:

HBCU	FY 2000 Accomplishments	University Research Centers	Principal Investigators	Partnership Awards
	Research Population Supported:	519	245	325
	Faculty Members	137	44	81
	Research Associates	30	15	15
	Postdoctoral Fellows	12	1	62
	Bachelors-Degree Level Students	207	135	134
	Masters-Degree Level Students	89	43	26
	Doctoral-Degree Level Students	44	7	7
	Degrees Awarded:	118	62	48
	Bachelors Degrees	76	42	42
	Masters Degrees	31	19	5
	Doctoral Degrees	11	1	1
	% Socially/Economically Disadvantaged or Disabled	88%	84%	98%
	Research Accomplishments:			
	Refereed Papers or Book Chapters:			
	Published	216	35	41
	Student (Co) Authors to above	111	14	33
	Accepted for Publication	86	11	15
	Student (Co) Authors to above	38	4	16
	Technical Presentations:			
	Total Presentations	**316**	**94**	**81**
	Presentations given by Students	125	37	44
	Leverage Achieved (in $M):			
	Funding Provided by MUREP	$10.7	$2.7	$3.3
	Leverage from Other NASA Programs	$5.4	$0.1	$0.2
	Leverage from Other Agencies	$14.4	$0.9	$2.4
	Technology Transfer Activities:			
	Patents disclosed, applied for, or awarded	6	4	1
	Commercial products being developed or marketed	3	4	2
	Grant Awards Reporting	11	50	33

HBCU Institutional SET Awards (URC Awards)

Eleven HBCU URC's were established by the Headquarters Office of Space Science (OSS), Office of Aerospace Technology (OAT), Office of Space Flight (OSF), Office of Biological and Physical Research (OBPR), Office of Earth Science (OES), and the Office of Equal Opportunity Programs (OEOP). Funding is provided in two stages and the capability of the university determines the amount. In the first stage, more funding is provided to establish a research infrastructure capable of sustaining long-term success in their research and education efforts (up to $2M per university). Based on the URC Program Plan, the funding is reduced in the second stage (not to exceed $1M per university) to recognize and encourage the movement of the URC's towards self-sufficiency through other funding sources. Funding for the following HBCU URC's was provided by the Strategic Enterprises in FY 2000 and FY 2001. In FY 2002, these funds have been placed in this budget.

University	Research Focus	Enterprises	Lead Center
Clark Atlanta	High Performance Polymers and Composites Research	OAT	GRC
Fisk	Photonic Materials and Devices	OSS	MSFC
Florida A&M	Nonlinear and Nonequilibrium Aeroscience	OAT	LaRC
Hampton	Optical Physics	OSS, OES	LaRC
Howard	Study of Terrestrial and Extraterrestrial Atmospheres	OSS, OES	GSFC
NC A&T State	Aerospace Research	OAT	LaRC
Tuskegee	Food and Environmental Systems for Human Exploration of Space	OAT	JSC
Alabama A&M	Hydrology, Soil Climatology, and Remote Sensing	OES	MSFC
Morehouse School of Medicine	Space Medicine and Life Sciences	OBPR	JSC
Prairie View A&M	Applied Radiation Research	OSF	JSC
Tennessee State	Automated Space Science	OSS	GSFC

HBCU Institutional SET Awards (Institutional Research Awards [IRA])

In FY 2001, HBCU's were invited to participate in the IRA (Research) program for the first time. The IRA (Research) goals include: (1) strengthening and improving core research areas of significance to the NASA mission; (2) increasing the number of students (who are U.S. citizens) conducting space research and working in NASA-related disciplines; (3) strengthening the research environment of eligible institutions and the capability of individuals by supporting the institutional infrastructure (through the acquisition of research equipment), faculty research, and disadvantaged undergraduate and graduate student researchers; and (4) encouraging technology transfer to the market place and to minority communities. To achieve these objectives, an Agencywide TRC is assigned to each of the selected IRA (Research) award recipients and is responsible for providing technical guidance. NASA promotes collaboration between its funded IRA institutions, the Centers/JPL, and with entities outside of NASA. Institutions are encouraged to seek funding through NASA's traditional opportunities, as well as other government agencies and private sources to promote future sustainability. IRA awards require substantial undergraduate and graduate student involvement in research projects.

In FY 2001, OAT and OSS provided funding for the new IRA (Research) Awards. Funds previously held in the Enterprises' budgets will reside in the OEOP FY 2002 MUREP budget and will provide second-year funding for the 2 HBCU IRA's.

HBCU Principal Investigator (PI) Awards

Faculty Awards for Research (FAR) grants provide for research and student support and exposure to the NASA peer review process to enable faculty to demonstrate creativity, productivity, and future promise in the transition to achieving competitive awards in the Agency's mainstream research activities. In FY 2000, funding was provided for 44 third-year awards. In FY 2001, continuation funding was provided for 20 awards. There were no new awards due to the conduct of the third party FAR program evaluation. In FY 2002, funding will be continued for 9 awards and 10 new awards will be selected through the competitive peer review process.

In FY 2000, the NAFP Fellows participated at three HBCU's including Bennett College, Texas Southern University, and Howard University. FY 2001 Fellows participated at six HBCU's including Hampton University, Texas Southern University, Prairie View A&M University, Spelman College, Alabama A&M University and Norfolk State University. In FY 2002, eight HBCU's are expected to participate in the NAFP.

HBCU Math and Science Education Awards

The Math and Science Education Awards are composed of unsolicited awards and awards made based on solicitations. Primary funding supports the following four focus areas: undergraduate awards; graduate awards; precollege awards; and teacher enhancement and preparation awards.

During the FY 2000 reporting period (Summer 1999 and Academic Year 1999/2000), 80 MUREP education and training projects were conducted at HBCU institutions. The programs included precollege and bridge programs, education partnerships with other universities, industry and nonprofit organizations, NRTS, teacher training, and graduate fellows and/or undergraduate programs. These programs reached a total of 19,402 participants, with the predominant number at the precollege level. The programs achieved major goals of heightening students' interest and awareness of career opportunities in MSET fields, and exposing students to the NASA mission, research and advanced technology through role models, mentors, and participation in research and other educational activities. Grantees reported 6,834 high school students in NASA programs and 670 high school students selected college preparatory MSET courses. There were 1,379 high school graduates, 719 enrolled in college, and 101 selected MSET majors. There were 161 prior year high school graduates (bridge students) in NASA programs and 128 students who successfully completed their freshman year. There were 1,822 teachers in teacher programs and 725 teachers received certificates. For undergraduate student programs, 2,859 students participated and 164 received degrees. There were 88 graduate students reported in the survey and 8 received degrees. There were 31 papers published, 17 of which were authored or co-authored by students. There were 33 presentations given at NASA Centers and 141 presentations at national and international conferences.

The FY 2001 Appropriations Bill for VA-HUD-Independent Agencies provided additional funding for NASA to make awards to Morgan State University ($1.6M), Texas College ($1.0M), and Spelman College ($1.0M). The across-the-board .038-percent rescission resulted in these additional amounts being decreased as follows: $1.464M to Morgan State University, $0.915M to Texas

College, and $0.915M to Spelman College. In FY 2001, funding was provided for 6 Mathematics, Science and Technology Awards for Teacher and Curriculum Enhancement Program (MASTAP) awards and 17 PACE awards. Funding will continue for PACE and MASTAP awards, and new HBCU educational awards will be selected in FY 2001 and FY 2002 to replace expiring awards.

Additionally, in an effort to be responsive to congressional direction to "strengthen graduate science, mathematics, engineering, and technology education at HBCU's" and to address the severe underrepresentation of African Americans at the doctoral level, NASA started a 5-year predoctoral fellowship program in FY 2000. A minimum of 10 graduate students will be selected in FY 2001 and funding continued in FY 2002. New selections will also be made in FY 2002.

HBCU Partnership Awards

In FY 2000, the 42 competitively awarded Partnership Awards for Innovative and Unique Education and Research (IUER) Projects continued at HBCU's located in 11 states and the District of Columbia received continuation funding and their last year of funding in FY 2001. In FY 2002, new awards will be selected under the Principal Investigator Awards and Mathematics and Science Awards categories. Four Partnership Awards for the Integration of Research into Undergraduate Education (PAIR) continued for the third year of the 5-year awards. Two new (PAIR) awards were competitively awarded to HBCU's (Norfolk State University and South Carolina State University). In FY 2002, a new solicitation will be issued to replace the four expiring HBCU awards. Two HBCU PAIR awards will receive their third year of funding

In FY 2002, HBCU's will continue to participate in and contribute to the establishment of the NASA/NAFEO Academy for Scientific Research and Educational Advancement at Ames Research Center.

HBCU Partnerships with NASA Strategic Enterprises and the Office of Equal Opportunity Programs

Office of Earth Science--Two HBCU's received three 3-year awards from the jointly sponsored OES and OEOP competitive Earth Science Education initiative in FY 2000 (1 to Norfolk State University and 2 to Elizabeth City State University). Second-year funding was provided in FY 2001 and will be continued during the final funding year,
FY 2002. Also, in FY 2000 two HBCU's (Alabama A&M University and Howard University) were selected to participate in the 1-year UnESS Project, "Concept Study Phase.

Office of Space Science--In FY 2000, the OSS/OEOP Minority University Education and Research Partnership Program competitively selected six HBCU's to participate in the Minority Institution Initiative. The first year of the planned 3-year funding was initiated in FY 2001. The second year of funding will occur in FY 2002. The six award recipients were: Norfolk State University, Hampton University, Florida A&M University, Alabama A&M University, Southern University A&M, and South Carolina State University.

In FY 2001, the 42 Partnership (IUER) Awards will receive second-year funding and the 4 PAIR Awards will receive third-year funding. In FY 2002, the 5 PAIR Awards will receive continuation funding. New awards to enhance the MSET infrastructure in NASA-related disciplines will be competitively selected in FY 2001 and FY 2002.

BASIS OF FY 2002 FUNDING REQUIREMENT

OTHER MINORITY UNIVERSITIES (OMU)

	FY 2000	FY 2001	FY 2002
		(Thousands of Dollars)	
Other Minority Universities	17,900	19,500	33,200
Institutional Science, Engineering and Technology Awards		3,063	11,563
Principal Investigator Awards	3,500	1,119	2,269
Math and Science Education Awards	11,300	11,300	15,303
Partnership Awards	3,100	4,018	4,065
Enterprise Program Funding *	[11,600]	[15,300]	[--]

* $15,300-increase in FY 2002 represents encumbered funding previously included in the Enterprise budgets.

PROGRAM GOAL

The primary goal of NASA's OMU program is to increase the opportunities for HSI's, TCU's, and educational organizations serving substantial numbers of people with disabilities to participate in and benefit from NASA's research and education programs.

STRATEGY FOR ACHIEVING GOALS

NASA established the OMU program per P. L. 98-371, House Report 98-803, and Senate Report 98-506 to "...review institutions of higher learning having significant minority enrollments to find ways to build closer relations with such schools, meet NASA's research objectives and increase the number of individuals from underrepresented groups in the pool of graduate researchers ...build a closer relationship with institutions serving significant numbers of minorities." In addition, Executive Order 12900 (February 22, 1994) mandated that agencies increase Hispanic American participation in Federal education programs in which Hispanic Americans currently are underserved; Executive Order 12928 (September 16, 1994) directed Federal agencies to promote procurement with "...Historically Black Colleges and Minority Institutions;" and P.L. 103-327 directed the establishment of URC's at the HSI's. Executive Order 13021 (October 19, 1996) directed Federal agencies and departments to strengthen their relationships with TCU's. In response, NASA is developing a 5-year plan of action and submitted its first annual accomplishment report to the White House Initiative Office for Tribal Colleges. Present awards to TCU's are encouraged within the five programmatic awards.

Although similar to the HBCU Program strategies and because of the differences in the evolution of MI's and the particularities of Federal mandates for HBCU's and Hispanic Americans, NASA's approach and implementation plan have been adjusted to incorporate these factors. For example, the Federal mandate for Hispanic Americans directs Federal agencies to "....improve educational outcomes for Hispanic Americans participating in Federal education programs...". As a result, the Agency has placed greater emphasis on mathematics and science awards than on institutional research awards.

ACCOMPLISHMENTS AND PROPOSED RESULTS

As a result of NASA's FY 2000 investment in OMU's, 132 OMU's, non-profit educational organizations and other institutions were involved in 77 research and education awards which reached more than 32,627 faculty, teachers, and students. Specific accomplishments for each of the categories are as follows:

FY 2000 Accomplishments	University Research Centers	Institutional Research Awards	Principal Investigators	Partnership Awards
Research Population Supported:	209	191	166	54
Faculty Members	53	35	27	16
Research Associates	12	21	1	4
Postdoctoral Fellows	1	10	5	0
Bachelors-Degree Level Students	74	72	94	15
Masters-Degree Level Students	54	33	29	15
Doctoral-Degree Level Students	15	20	10	4
Degrees Awarded:	61	27	60	12
Bachelors Degrees	36	17	48	5
Masters Degrees	22	7	12	7
Doctoral Degrees	3	3	0	0
% Socially/Economically Disadvantaged or Disabled	87%	85%	82%	100%
Research Accomplishments:				
Refereed Papers or Book Chapters:				
Published	68	69	25	6
Student (Co) Authors to above	45	32	41	7
Accepted for Publication	59	33	14	8
Student (Co) Authors to above	35	24	11	12
Technical Presentations:				
Total Presentations	188	124	59	29
Presentations given by Students	103	41	47	15
Leverage Achieved (in $M):				
Funding Provided by MUREP	$2.8	$2.5	$1.9	$0.4
Leverage from Other NASA Programs	$0.3	$0.3	$0.2	$0.1
Leverage from Other Agencies	$5.3	$2.7	$3.1	$0.2
Technology Transfer Activities:				
Patents disclosed, applied for, or awarded	8	10	3	0
Commercial products being developed or marketed	4	5	0	2
Grant Awards Reporting	3	5	28	10

OMU Institutional SET Awards (URC)

Three OMU URC Awards were established by Headquarters OSS, OAT, OSF, OES, and OEOP. Funding for the following OMU URC's were provided by the Strategic Enterprises in FY 2000 and FY 2001. In FY 2002, funds for these awards reside in this budget.

University	Research Focus	Enterprises	Lead Center
New Mexico	Autonomous Control Engineering	OAT	ARC
Texas at El Paso	Pan American Center for Earth and Environmental Studies	OES	GSFC
Puerto Rico at Mayaguez	Tropical Center for Earth and Space Sciences	OSS, OES	GSFC

OMU Institutional SET Awards (IRA)

The IRA (Research) goals include: (1) strengthening and improving core research areas of significance to the NASA mission; (2) increasing the number of students who are U.S. citizens conducting space research and working in NASA-related disciplines; (3) strengthening the research environment of eligible institutions and the capability of individuals by supporting the institutional infrastructure (through the acquisition of research equipment), faculty research, and disadvantaged undergraduate and graduate student researchers; and (4) encouraging technology transfer to the market place and to minority communities. To achieve these objectives, an Agencywide TRC is assigned to each of the selected IRA (Research) award recipients and is responsible for providing technical guidance. The IRA (NRTS) grants offer advanced computer networking infrastructure and technologies to other institutions of higher education and schools with substantial enrollments of socially and economically disadvantaged and/or disabled students in their regions. These institutions are responsible for information dissemination sites, development of faculty and student network skills, and user working groups. NASA promotes collaboration between its funded IRA institutions, the Centers/JPL, and with entities outside of NASA. Institutions are encouraged to seek funding through NASA's traditional opportunities, as well as other government agencies and private sources to promote future sustainability. IRA awards require substantial undergraduate and graduate student involvement in research projects.

In FY 2000 and FY 2001, OSS, OES, and OAT continued to fund 5 OMU IRA (Research). In FY 2002, funding for the following awards will be funded under this budget. In FY 2001, OMU's will have an opportunity to compete for NASA URC awards. These awards will be made early in FY 2002.

University	Research Focus	Enterprises	Lead Center
IRA (Research):			
California State-Los Angeles	Use of Decentralized Control in Design of a Large Segmented Space Reflector	OSS	JPL
Florida International	High Performance Database Management with	OES	GSFC

	Application to Earth Sciences		
Puerto Rico at Rio Piedras	Land Management in the Tropics and its Effects on the Global Environment	OES	MSFC
City College of New York	Tunable Solid State Laser and Optical Imaging	OAT	LaRC
New Mexico Highlands	Alliance for Nonlinear Optics	OAT	MSFC
IRA (NRTS):			
City College of New York	Urban Collaboration for Network Connectivity and Internet Access	OSS, OES	GSFC
Texas at El Paso	Network Resources Training Sites	OSS	GSFC

OMU Principal Investigators (PI) Awards

Faculty Awards for Research (FAR) provide for research and student support and exposure to the NASA peer review process to enable faculty to demonstrate creativity, productivity, and future promise in the transition to achieving competitive awards in the Agency's mainstream research activities. In FY 2000, funding was provided for 29 awards. In FY 2001, continuation funding was provided for 13 awards. New awards will be selected in FY 2001 and FY 2002.

In FY 2000, an NAFP Fellow conducted research training at the University of Puerto Rico-Humacao. In FY 2001, NAFP Fellows were located at two OMU's, New Mexico State University and the University of Puerto Rico-Rio Piedras. In FY 2002, NAFP Fellows are expected to be involved with at least four OMU's.

OMU Mathematics and Science Education Awards

The Math and Science Education Awards support the following four focus areas: undergraduate awards; graduate awards; precollege awards; and teacher enhancement and preparation awards. New awards will be competitively selected in FY 2001 and FY 2002.

During the FY 2000 reporting period (Summer 1999 and Academic Year 1999-2000), 109 MUREP education and training projects were conducted at OMU institutions. The institutions conducted precollege and bridge programs, education partnerships with other universities and industry, NRTS, teacher training, and graduate and undergraduate programs. These programs reached a total of 24,263 participants, predominantly at the precollege level and achieved major goals of heightening students' interest and awareness of career opportunities in MSET fields, and exposing students to the NASA mission, research and advanced technology through role models, mentors, and participation in research and other educational activities. Grantees reported 8,356 high school students in NASA programs and 2,790 high school students selected college preparatory MSET courses. There were 590 high school graduates, 555 enrolled in college, and 515 who selected MSET majors. There were 20 prior high school graduates (bridge students) in NASA programs and 18 students successfully completed the freshman year. There were 951 teachers in teacher programs and 78 teachers received certificates. There were 7,090 undergraduate students and 1,018 received undergraduate degrees in NASA-related fields. There were 645 graduate participants and 144 received graduate degrees in NASA-related fields. There were 43 papers published, 35 of which were authored or co-authored by students. There were 25 presentations given at NASA Centers and 66 presentations given at national and international conferences.

In FY 2000, 10 MASTAP, 32 PACE, and 10 SEMAA awards were continued. In FY 2001, 10 MASTAP, 22 PACE, and 10 SEMAA awards continued to be funded. A solicitation to competitively fund 4 new SEMAA sites was released. In FY 2002, 6 MASTAP, 11 PACE, and 14 SEMAA awards will continue to be funded.

OMU Partnership Awards

In FY 2000, 30 new Partnership Awards for Innovative and Unique Education and Research (IUER) Projects in eight states and Puerto Rico received continuation funding and their last year of funding in FY 2001. In FY 2002, new awards will be selected under the Principal Investigator Awards and Mathematics and Science Awards categories. Three Partnership Awards for the Integration of Research into Undergraduate Education (PAIR) received continuation funding. One new PAIR award (California State University at Northridge) was awarded a 4-year grant in FY 2000. In FY 2001, 4 PAIR awards will receive continuation funding. In FY 2002, a new solicitation will be issued to replace the 3 expiring OMU PAIR Awards. One OMU PAIR Award will receive third-year funding. New awards to enhance the OMU MSET infrastructure in NASA-related disciplines will be competitively selected in FY 2001 and FY 2002.

In FY 2002, OMU's, including HSI's and TCU's, will continue to participate in and contribute to the establishment of the NASA/NAFEO Academy for Scientific Research and Educational Advancement at Ames Research Center.

OMU Partnerships with NASA Strategic Enterprises and the Office of Equal Opportunity Programs

Office of Earth Science (OES)--One OMU, a Tribal College (Salish Kootenai College), received a 3-year award from the jointly sponsored OES and OEOP competitive Earth Science Education initiative in FY 2000. Second year funding was provided in FY 2001 and will be continued during the final funding year, FY 2002. Seven OMU's, including 3 HSI's (University of Puerto Rico at Mayaguez, California State University at Northridge, and Sul Ross University) and 4 other minority-serving institutions (Chicago State University, Medgar Evers College, City College of New York, and LaGuardia Community College) were selected to participate in the 1-year UnESS Project, "Concept Study Phase."

Office of Space Science (OSS)--In FY 2000, the OSS/OEOP Minority University Education and Research Partnership Program competitively selected nine OMU's to participate in the Minority Institution Initiative. The first year of the planned 3-year funding was initiated in FY 2001. The second year of funding will occur in FY 2002. The nine award recipients were the: University of Texas-El Paso, Eastern New Mexico University, University of Houston, York College, Southwestern Indian Polytechnic Institute, Salish Kootenai College, Dine College, Medgar Evers College, and the University of Hawaii at Hilo.